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METHOD AND SYSTEM FOR RESPONDING TO DIGITAL VEHICLE REQUESTS

Group Art Unit: 2617

Examiner: Phoung, Dai

APPEAL BRIEF

Board of Patent Appeals and Interference
US Patent and Trademark Office
PO Box 1450
Alexandria, Virginia 22313-1450

Sir:

On October 1st, 2007, Appellant filed a Notice of Appeal of the final rejection mailed June 1st, 2007. The appeal covers claims 1-3, 5, 6, 8 and 21-32 which were rejected on prior art grounds. The Notice of Appeal was received in the Patent Office on October 1st, 2007. Applicant respectfully traverses and appeals those rejections.

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(i) Real Party in Interest

The real party in interest is the assignee of the applicant inventor who assigned all of his right, title and interest to General Motors Corporation, a Michigan corporation, having its principal place of business at 300 Renaissance Center, Detroit, Michigan 48265-3000.

(ii) Related Appeals and Interferences

There are no other appeals and/or interferences known to Appellant, his assignee, and/or legal representatives that will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

(iii) Status of Claims

In the final Office Action of June 1, 2007, appealed claims 26 and 32 were rejected under 35 U.S.C. §112 second paragraph, while claims 1-3, 5, 6, 8 and 21-32 were rejected under 35 U.S.C. §103(a). Claims 4, 7, and 9-20 were cancelled. The application does not contain any other claims.

Appellant is appealing the rejections of claims 1-3, 5, 6, 8, and 21-32.

(iv) Status of Amendments

No amendment has been filed subsequent to the final rejection.

(v) Summary of Claimed Subject Matter

In accordance with 37 CFR 41.37(c)(1)(v), a concise explanation is provided below of subject matter defined in each of the independent claims involved in this appeal, with reference to the specification by page and line numbers and to the drawings by reference characters. Also in accordance with 37 CFR 41.37(c)(1)(v), for each dependent claim argued separately under the provisions of 37 CFR 41.37(c)(1)(vii), every means plus function as permitted by 35 U.S.C. 112, sixth paragraph, is identified and the structure, material, or acts described in the specification as corresponding to each claimed function is set forth with reference to the specification by page and line numbers, and to the drawings by reference characters.

Independent claims 1 and 21 are directed to responding to digital requests. According to claim 1, a voice query is received at a telematics unit in a vehicle. (Fig. 2, Block 225; Page 10, Lines 8-9) Then, the voice query is converted to a digital signal. (Fig. 2, Block 230; Page 10, Lines 11-16) Next, the digital signal is transmitted from the telematics unit to a computer-end recipient at a call center node in communication with an information database, wherein the digital signal is sent to the computer-end recipient at the call center node via digital packet protocol over a wireless network. (Fig. 2, Blocks 235 and 240; Page 11, Lines 1-15) The digital signal is parsed using the computer-end recipient at the call center node to determine an inquiry. (Fig. 2, Block 245; Page 11, Lines 16-17) The information database is accessed based on the inquiry. (Fig. 2, Block 250; Page 11, Lines 21-22) A response to the inquiry is formulated using the computer-end recipient. (Fig. 2, Block 250; Page 11, Lines 20-21) The formulated response is transmitted via the digital packet data protocol over the wireless network to the telematics unit. (Fig. 2, Block 255; Page 11, Lines 24-30) And finally, the formulated response is translated to an analog format for playback in a vehicle. (Fig. 2, Block 260; Page 12, Lines 1-5)

Independent claim 21 also encompasses receiving a voice query at a vehicle. First, a voice query is received at a telematics unit in a vehicle. (Fig. 2, Block 225; Page 10, Lines 8-9) Then, the voice query is converted to a digital signal. (Fig. 2, Block 230; Page 10, Lines 11-16) Next, the digital signal is transmitted from the telematics unit to a remote computer-end recipient via digital packet data protocol. (Fig. 2, Blocks 235 and 240; Page 11, Lines 1-15) The digital signal is parsed using the computer-end recipient at the call center node to determine an inquiry.

(Fig. 2, Block 245; Page 11, Lines 16-17) A response to the inquiry is formulated. (Fig. 2, Block 250; Page 11, Lines 20-21) A transmission via digital cellular packet data protocol of at least one formulated response is received at the telematics unit. (Fig. 2, Block 255; Page 11, Lines 5-15) And finally, a response is presented. (Fig. 2, Block 260; Page 12, Lines 1-7)

Dependent claim 3 recites filtering the received voice query before converting it to the digital signal. (Fig. 2, Block 230; Page 10, Lines 14-16)

Dependent claims 24 and 30 variously recite compressing the digital signal prior to the transmitting step to reduce the amount of data transmitted in the data packets from the vehicle to the computer-end recipient. (Fig. 2, Block 230; Page 10, Lines 16-20 and Page 11, Lines 1-5)

Although the Appellants have provided the summary of claimed subject matter with references to specific embodiments of the invention to comply with the requirements set forth in the relevant provisions of 37 C.F.R., this summary has been provided to aid the Board in evaluating the appeal and is not intended to limit the meaning or definition of any terms in the claims. Furthermore, it should be appreciated that the above-provided reference numerals and pages/line numbers are only for exemplary purposes, as other instances and/or embodiments of the claimed elements could appear elsewhere in the application.

(vi) Grounds of Rejection to be Reviewed on Appeal

The issues on appeal are:

1) whether claims 26 and 32 are unpatentable under 35 U.S.C. §112, second paragraph as being indefinite for failure to point out and distinctly claim the subject matter which the Applicant regards as his invention;

2) whether the subject matter of claims 1-3, 5-6, 8, 21-23 and 27-29 is unpatentable under 35 U.S.C. §103(a) over Cox et al. (U.S. Patent Publication No. 2003/0216145) in view of Rigo et al. (U.S. Patent Publication No. 2002/0049535); and

3) whether the subject matter of claims 24-26 and 30-32 is unpatentable under 35 U.S.C. §103(a) over Cox et al. in view of Rigo and further in view of Isaac et al. (U.S. Patent No. 6,748,211).

(vii) Argument

Claims 26 and 32—

Claims 26 and 32 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as his invention. However, the basis for the rejection consists of a single pseudo-sentence which states "Regarding claims 26 and 32, the Applicant particularly point out whereof specification supports the limitations of claims 26 and 32." Applicant respectfully submits that this does not set forth a *prima facie* rejection since it does not adequately identify a proper basis for rejection of these claims. For this reason and those discussed below, the rejection is respectfully traversed.

With the hope of advancing prosecution and obtaining withdrawal of the rejection, Applicant is providing the following response based on its best understanding of the Examiner's above-quoted rationale. Given that the rejection is not one of enablement or written description, but of indefiniteness under the second paragraph of § 112, Applicant believes that claims 26 and 32 are being rejected on the basis that they are indefinite because there is not adequate support in the specification for the limitations of these claims. However, MPEP § 2173.05(e) states that:

> The mere fact that a term or phrase used in the claim has no antecedent basis in the specification disclosure does not mean, necessarily, that the term or phrase is indefinite. There is no requirement that the words in the claim must match those used in the specification disclosure. Applicants are given a great deal of latitude in how they choose to define their invention so long as the terms and phrases used define the invention with a reasonable degree of clarity and precision.

Thus, it is not sufficient to base an indefiniteness rejection merely on an asserted lack of support from the specification. To the contrary, the proper basis for an indefiniteness rejection is stated in MPEP §2173.02; namely, whether "those skilled in the art would understand what is claimed when the claim is read in light of the specification." *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 806 F.2d 1565, 1576, 1 USPQ2d 1081, 1088 (Fed.Cir.1986). The Examiner has not set forth any basis for concluding that the language used in claims 26 and 32 would not be understood by those skilled in the art.

Furthermore, Applicant's disclosure provides ample support for the subject matter of these claims. Applicant's claims 26 and 32 involve compressing a digital signal containing a voice query with the compression being done at a compression ratio that is at least twice the compression ratio used to compress the (at least one) response to the voice query. For instance, Applicant describes a user inputting, at block 225, a voice request through the microphone 130, which is then passed to a DSP 122. (Fig. 2, Block 225; Page 10, Lines 8-9) Then, the analog data is digitized and compressed at the DSP 122 which contains computer programs and converters that are responsible for encoding, digitizing, and compressing the analog data for transmission. (Fig. 2, Block 230; Page 10, Lines 16-19) The computer programs and converters at the DSP 122 can use a very high compression algorithm, as the data is parsed and interpreted by a computer and does not need to be recognizable by a human recipient. The compression algorithm may compress the audio data at 2 to 3 times the compression ratio of human recognizable audio data compression. (Page 10, Lines 22-26) The response that is generated is also digital and may be directly encoded and compressed for a human end-recipient. (Page 11, Lines 22-23) Thus, the voice query digital signal is compressed at a compression ratio that is at least twice (e.g., the stated 2 to 3 times) the compression ratio of the (human recognizable) response. In view of the description provided by the Applicant, it is clear that claims 26 and 32 fulfill the requirements set forth in both the first and second paragraphs of § 112.

Claims 1-3, 5-6, 8, 21-23 and 27-29—

Claims 1-3, 5-6, 8, 21-23 and 27-29 were rejected as unpatentable under 35 U.S.C. §103(a) over Cox in view of Rigo. The rejections are traversed because these references do not disclose or render obvious the subject matter of independent claims 1 and 21, regardless of whether they are considered singly or in combination. In particular, the rejection is traversed because 1) contrary to that stated in the final Office Action, Cox fails to disclose or suggest converting a voice query to a digital signal, transmitting the digital signal to a computer-end recipient via packet data protocol, and parsing the digital signal by a computer-end recipient, and 2) Rigo does not make up for all of these deficiencies of Cox.

Cox is directed to providing directional assistance to a telephone subscriber. Or more specifically, Cox is directed to giving callers directions from one specified location to another.

Cox teaches a caller using a wireless telephone to contact a directory assistance center and a directory assistance agent. The caller's present location or the origination of the caller's desired travel is determined. Then, a routing algorithm determines an appropriate route from the caller's present position to the destination location by referencing a database containing maps, transportation routes, construction information, etc. Cox discloses a wireless telephone user 10 initiating a call to directory assistance where the call is received by a mobile telephone switching office (MTSO) 16 and switched to a directory assistance center 50.[1]

Rigo is directed to online travel services that traditionally require an attendant, i.e. human interaction, at the hotel or restaurant end. With respect to independent claims 1 and 21, Rigo is cited by the Examiner only on the basis that it discloses a vehicle telematics unit that can be used in place of the wireless telephone of Cox to receive voice queries or "request information for [sic, from] a server."

1) *Claims 1-3, 5-6, 8, 21-23 and 27-29—Cox Fails to Disclose Converting a Voice Query to a Digital Signal*

The Examiner broadly points to FIG. 1 and paragraphs 25-58 and argues that Cox discloses converting the voice query to a digital signal. But the relevant portions of this disclosure simply describe a caller placing a voice call to an operator who receives the voice call. The caller then states his or her need for directions or travel assistance. Cox omits any mention of converting a voice query to a digital signal. Accordingly, Applicant respectfully disagrees with the Examiner's assertions.

For instance, in the Examiner's cited passages, a wireless telephone user 10 initiates a call to directory assistance where the call is received by a mobile telephone switching office (MTSO) 16 and switched to a directory assistance center 50.[2] At the directory assistance center 50, the call is routed to a directory assistance agent (e.g. an operator or VRU).[3] The caller then states his or her need for directions or travel assistance and identifies second location 14. In short, Cox discloses a caller sending a voice call to an operator where a voice call is received. At

1 Cox, paragraph 25.
2 Cox, U.S. Patent Publication 2003/0216145, paragraph 25.
3 Id, paragraph 26.

no point in the cited passages does Cox disclose converting a voice query by the user into a digital signal nor is it inherent in Cox to do so. Accordingly, Cox fails to disclose converting a voice query into a digital signal.

2) *Claims 1-3, 5-6, 8, 21-23 and 27-29—Cox Fails to Disclose Transmitting the Digital Signal to a Computer-End Recipient via Packet Data Protocol*

The cited passages in Cox fail to disclose sending a digital signal to a computer-end recipient much less sending the digital signal via packet data protocol. As stated previously, the Examiner has failed to provide valid support for converting a voice query into a digital signal. Furthermore, Cox also fails to disclose transmitting the digital signal to a computer-end recipient via packet data protocol. Cox does disclose transmitting data from the directory assistance center to the caller in the form of an Internet download.[4] While an Internet download would utilize packetized data, the caller *receives* this data from the directory assistance center rather than sends it. The Examiner has not identified any specific disclosure in Cox of a transmission of a digitized voice query to a computer-end recipient via packet data protocol. The paragraphs 25-58 of Cox do not teach or suggest any such step. Accordingly, this limitation of Applicant's independent claims 1 and 21 is also missing from Cox.

3) *Claims 1-3, 5-6, 8, 21-23 and 27-29—Cox Fails to Disclose Parsing the Digital Signal Using a Computer-End Recipient*

As Cox does not involve transmitting a digitized voice query from a user, it also does not disclose parsing of such a digital signal by a computer-end recipient. For reference, the Board's attention is directed to page 6 of Applicant's April 3, 2007 response in which it specified that "computer-end recipient" means a computer that receives, processes, and responds to the digitized voice query rather than, for example, a live operator or other human.

4) *Claims 1-3, 5-6, 8, 21-23 and 27-29— Rigo fails to solve Cox's Deficiencies*

As discussed above, contrary to that asserted in the final Office Action, Cox does not disclose at least the converting, transmitting, and parsing steps of independent claims 1 and 21.

[4] Id, paragraph 50.

Nor does Cox suggest or otherwise render obvious these steps. Nor has the Examiner asserted that Rigo makes up for these deficiencies. Instead, with respect to claims 1 and 21, Rigo has been asserted only on the basis that it discloses the use of a telematics unit. Nonetheless, as discussed below, although Rigo has relevance beyond its use of a telematics unit, it does not make up for the above-noted deficiencies of Cox and thus, the combination of these two references does not render obvious the subject matter of claims 1 and 21.

As with Cox, Rigo, does not involve converting voice queries to a digital signal that is sent to a "computer-end recipient at the call center" (claim 1) or to a "remote computer-end recipient" (claim 21) via "digital packet data protocol over a wireless network" (claim 1) or via "digital cellular packet data protocol" (claim 21). Rather, Rigo teaches a voice-activated mobile information system that involves a human interface only between the person in the vehicle and an on-board (vehicle) computer system (see Rigo ¶ [0042]). This is done using voice technology 40 to carry out speech recognition and to cause the on-board computer to carry out the voice query/command, such as to retrieve location data, or obtain fresh satellite data, and then respond to the vehicle operator. Thus, although some or all of the data used to respond may come from a remotely located computer (e.g., computer equipment at a central station or at the hotel or restaurants themselves), Rigo nonetheless teaches that speech recognition and response is carried out on-board the vehicle and not by way of sending digitized speech to a computer via digital packet data, which parses that data, formulates a response (claim 1) and send the response back to the vehicle again as digital packet data.

Furthermore, given that the Examiner has utilized Rigo in his combination on the basis that it teaches use of a telematics unit to receive a voice query and request information from a server, the use of that teaching in Cox would lead one of ordinary skill in the art to adopt Rigo's approach of speech recognition at the vehicle (which is a part of his telematics unit 32) coupled with on-board computer-based data access to remote servers, which is directly opposite the claimed approach of sending the voice query as a digital signal via packet data to a remote location where it is then processed and a response formulated. Thus, the suggested combination actually teaches away from the claimed methods.

Accordingly, for at least the foregoing reasons, Applicant respectfully submits that independent claims 1 and 21 and each of their dependent claims patentably define over the combination of Cox and Rigo.

Claim 3

Claim 3 ultimately depends from claim 1 and should be allowed therewith. Claim 3 is also separately patentable for the reasons discussed below.

The Examiner has failed to establish a *prima facie* case for obviousness. Specifically, the combination of Cox and Rigo fails to teach or suggest all of Applicant's claim limitations. Dependent claim 3 recites the step of filtering the received voice query before converting it to the digital signal. The Examiner argues that Fig. 2 and paragraphs 41-44 of Rigo disclose filtering the received voice query before converting it into the digital signal. However, the cited portions of Rigo have been reviewed and Applicant can find no such disclosure or even a suggestion of such a step. Furthermore, while the Examiner states that it is obvious that the telematics unit includes a filter which filters noise while receiving voice from a user[5], he provides no rationale or technically supportable basis for this conclusion. If his reasoning was based on common knowledge or official notice, such was not indicated in the final Office Action, nor has it been supported by clear technical reasoning underlying the finding as required by MPEP 2144.03. If instead the Examiner is relying on personal knowledge to support the finding of what is known in the art, the Examiner must provide an affidavit or declaration setting forth specific factual statements and explanation to support the finding. Since the Examiner has not met these requirements, nor has he shown that Cox or Rigo discloses the limitation of claim 3, he has not met the burden for a *prima facie* case of obviousness.

Claims 24-26 and 30-32—

Claims 24-26 and 30-32 were rejected as unpatentable under 35 U.S.C. §103(a) over Cox in view of Rigo and further in view of Isaac et al. (U.S. Patent No. 6,748,211). Applicant respectfully traverses the rejection of dependent claims 24-26 and 30-32 for at least the reason that Isaac fails to make up for the deficiencies of Cox and Rigo and thus the combination does

[5] Final Office Action, June 1, 2007, lines 20-21.

not render obvious the subject matter of the base independent claims nor these dependent claims themselves.

Isaac is directed to telematics systems that select or define only a single bearer service prior to the transmission of a message regardless of the type of data contained in the message. Isaac teaches a client device in a communication system having a service center. The client device has the capability of transmitting the message to the service center over each of a plurality of bearer services according to a sequential order based on the priority of data. Isaac discloses the use of an application layer having a compression function that formats a message after the client device determines the appropriate bearer system and priority of data.

Dependent claims 24 and 30 variously recite the step of further compressing the digital signal prior to the transmitting step to reduce the amount of data transmitted in the data packets from the vehicle to the computer-end recipient. While Isaac discloses the concept of compressing data sent from a vehicle, it does not make up for the basic failure of Cox and Rigo to teach or suggest the subject matter of the independent claims; namely, the converting, transmitting, and parsing steps discussed above. Thus, claims 24-26 and 30-32 are not obvious in view of this combination of references.

Claims 26 and 32

Claims 26 and 32 each ultimately depends from claims 21 and 1, respectively, and should be allowed therewith. These claims are also separately patentable for the reasons discussed below.

Claims 26 and 32 each recite that the digital signal (digitized voice query) is compressed with a compression ratio at least twice the compression ratio used to compress the (at least one) response. This limitation is not disclosed or suggested by any of the references relied upon by the Examiner. The portions of Isaac cited by the Examiner do not disclose this, and the Examiner's statements concerning the response being just a "simple acknowledgement" are unsupported assumptions that do not meet the evidentiary requirements for a *prima facie* rejection. In this regard, Applicant notes that, contrary to that stated by the Examiner, the response might involve quite a bit more data than the voice query. For example, the voice query

"How do I get to the nearest gas station?" might be answered with long and involved directions that require much more data sent to the vehicle than was needed to send the voice query from the vehicle. In this regard, Applicant notes that, in the embodiment disclosed in the present application, the higher compression used in sending the voice query is not because of the relative amount of data contained in the voice query versus the response, but because it is analyzed (parsed) by a computer and thus need not be of human speech quality to be properly interpreted, whereas the response back to the vehicle is converted to analog audio that is played back for the vehicle operator and, thus, does need to be of sufficient speech quality to be recognizable by humans.

Conclusion

In view of the foregoing, Applicant respectfully submits that the rejections of all pending claims in this case are improper and should be overturned.

The Commissioner is hereby authorized to charge any deficiencies, or credit any overpayment associated with this appeal brief to Deposit Account No. 07-0960.

Respectfully submitted,

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(viii) Claims Appendix

1. A method for responding to digital vehicle requests, the method comprising:

receiving a voice query at a telematics unit in a vehicle;

converting the voice query to a digital signal;

transmitting the digital signal from the telematics unit to a computer-end recipient at a call center node in communication with an information database, wherein the digital signal is sent to the computer-end recipient at the call center node via a digital packet data protocol over a wireless network;

parsing the digital signal using the computer-end recipient at the call center node to determine an inquiry;

accessing the information database based on the inquiry;

formulating at least one response to the inquiry using the computer-end recipient;

transmitting the at least one formulated response via the digital packet data protocol over the wireless network to the telematics unit; and

translating the at least one formulated response to an analog format for playback in the vehicle.

2. The method of claim 1 further comprising:

optimizing the telematics unit for transmission of the voice query to a computer call center node.

3. The method of claim 2 further comprising:

filtering the received voice query before converting it to the digital signal.

4. (Cancelled)

5. The method of claim 1 further comprising:

transmitting the signal to the call center using a cellular packet data connection.

6. The method of claim 1 wherein transmitting the at least one formulated response via the digital packet data protocol over the wireless network to the telematics unit comprises:

transmitting the at least one formulated response in a digital streaming audio format.

7. (Cancelled)

8. The method of claim 1 wherein transmitting information via the wireless network further comprises transmitting information via an Internet protocol.

9-20. (Cancelled)

21. A method for responding to digital vehicle requests, comprising the steps of:

receiving a voice query at a telematics unit in a vehicle;

converting the voice query to a digital signal;

transmitting the digital signal from the telematics unit to a remote computer-end recipient via a digital cellular packet data protocol;

parsing the digital signal using the computer-end recipient to determine an inquiry;

formulating at least one response to the inquiry;

receiving a transmission of the at least one formulated response at the telematics unit via the digital cellular packet data protocol; and

presenting the at least one formulated response.

22. The method of claim 21, wherein the digital cellular packet data protocol is the digital cellular 3G packet data protocol.

23. The method of claim 21, wherein the step of transmitting the digital signal to a remote computer-end recipient via a digital cellular packet data protocol, further comprises transmitting the digital signal via a digital streaming audio format.

24. The method of claim 21, further comprising the step of compressing the digital signal prior to the transmitting step to reduce the amount of data transmitted in the data packets from the vehicle to the computer-end recipient.

25. The method of claim 24, further comprising the step of compressing the at least one response.

26. The method of claim 25, wherein the digital signal is compressed with a compression ratio at least twice the compression ratio used to compress the at least one response.

27. The method of claim 21, wherein the parsing step further comprises transforming the digital signal into computer commands to determine the inquiry.

28. The method of claim 21, wherein the parsing step and formulating step are automated by the computer-end recipient.

29. The method of claim 21, wherein the presenting step further comprises converting the at least one formulated response to an analog signal and playing the signal as audio through at least one speaker in the vehicle.

30. The method of claim 1, further comprising the step of compressing the digital signal prior to transmitting the digital signal to the call center node, wherein the compression reduces the amount of data transmitted in the data packets from the vehicle to the call center node.

31. The method of claim 30, further comprising the step of compressing the at least one response.

32. The method of claim 31, wherein the digital signal is compressed with a compression ratio at least twice the compression ratio used to compress the at least one response.

(ix) Evidence Appendix

None.

(x) Related Proceedings Appendix

None.